

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/427,457	10/16/1999	GEOFF P. ANDERSEN	AFB00497	3207

7590 08/01/2003

THOMAS C STOVER
ESC JAZ
40 WRIGHT STREET
HANSCOM AFB, MA 017312903

EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
----------	--------------

2872

DATE MAILED: 08/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/427,457

Applicant(s)

ANDERSEN, GEOFF P.

Examiner

Audrey Y. Chang

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 May 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8, 12-26 and 29-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8, 12-26 and 29-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Art Unit: 2872

DETAILED ACTION

Remark

- This Office Action is in response to applicant's amendment filed on May 27, 2003, which has been entered as paper number 21.
- By this amendment, the applicant has amended claims 1, 2, 18, 21 and 37.
- Claims 1-8, 12-26, and 29-39 remain pending in this application.
- The rejections under 35 USC 112, first paragraph, set forth in the previous Office Actions are withdrawn in response to applicant's amendment.
- The objections to drawing set forth in the previous Office Actions are withdrawn in response to applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 2-8, 12-14, 15-17, 18, 19, 20, 21-26, 29-31, 32-35, 37, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over **the patent issued to Leith (PN. 3,580,655)**.

Leith teaches a *method and apparatus for producing a holographic phase plate*, serves as the *holographic image corrector*, for *correcting aberrations and distortions caused by an optical system*, wherein a collimated *laser light beam* generated by a *coherent light source* (201, Figure 27), serves as the first laser light beam, is send to illuminate the *optical system* (205), to form an *object beam* (215). The object beam then *intersects and interferes* with a *reference laser beam*, generated form the same coherent

Art Unit: 2872

light source, in a *photographic plate* (213), serves as the *recording medium*, to record a hologram bearing the object information of the optical system. Leith teaches that after the holographic phase plate is developed, an object (219, Figure 28) intended to be viewed is placed at the object plane of the optical system wherein the light illuminates and reflects off the object will be passed through the optical system and the holographic phase plate to produce a *corrected* image of the object at off-axis position, (223, Figure 28). Leith teaches that the preferred coherent light source is laser light source, (please see column 2, lines 19-20).

This reference has met all the limitations of the claims with the exception that it does not teach explicitly that the optical system is an objective or is an objective in a microscope. However since the method for correcting the aberrations of the *optical system* of Leith is not restricted to a particular optical system and may be applied to *any* optical system, which certainly include an objective or an objective in a microscope, this feature is therefore implicitly included. The features concerning the holographic optical element being used in a microscope are also considered to be obvious modifications to one skilled in the art for it has been held that a recitation with respect to the manner in which a claimed apparatus *is intended to be employed does not* differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Madham*, 2 USPQ2d 1647 (1987). With regard to the feature concerning the “image correction in microscope” which is stated in the *preamble*, it has been held that a *preamble* is denied the effect of a limitation wherein the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951). In this case the claims following the preamble each contains a self-contained description of the structure for making a hologram using an objective that does not depend on the “microscope” to be complete.

With regard to the feature concerning using a pinhole plate in front of the optical system, Leith in a different embodiment teaches explicitly to use a *pinhole* (239, Figure 29) in front of the optical system

Art Unit: 2872

(249) intended to be corrected to record the optical system in a photographic plate (257) as a hologram. The pinhole is used in *both* the object beam path and in reference beam path, (please see Figure 29). It is implicitly true in light of Figure 28 of Leith, an object intended to be viewed by the optical system can be placed at the pinhole position which is the object plane of the optical system to replace the pinhole and the recording laser light (235) illuminates the object as the light retraces the object beam path in the recording phase will create a corrected image of the object at an off-axis reference beam path as shown in Figure 28. The principle of reproducing reference beam from object beam and reproducing object beam from reference of a hologram is the *essential properties* of a hologram. It would then have been obvious to one skilled in the art to apply the teachings of Leith in Figure 29 to use a pinhole in the object beam path as well as in the reference beam path to eliminate possible aberration from the light source as the light beam is being expanded and to make the light beam generated from a point light source so that it can more accurately reproduce a corrected image for the object intended to be viewed as it is placed at the pinhole or light focusing point of the pinhole.

With regard to the features concerning the optical system may also be a concave mirror and being tilted to an off-axis position, although these references do not teach such features explicitly however since concave mirror is a common type of optical system, which can be implicitly included in the "optical system" of Leith for making holographic phase plate to correct the aberration of the concave mirror. The specification also fails to teach the criticality of having this particular arrangement would overcome any problem in prior art such features are therefore being considered as obvious matter of design choices to one skilled in the art for the benefit of making holographic phase plate to correct the aberration of the concave mirror.

With regard to the features concerning the sizes of the systems, these references do not teach such features explicitly however they are either inherently met by the arrangements of the cited references or

Art Unit: 2872

an obvious modifications to one skilled in the art since a change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

With regard to the features concerning the pinhole plates used being an array of pinholes, this reference does not teach such features explicitly however such modifications would have been an obvious matter of design choice to one having ordinary skill in the art since it is known in the art to use a pinhole plate or a pinhole array to provide spatial filtering to the light beam for the purpose of regulate the light beam profile and for the benefit of providing a larger corrected viewing field for the optical system.

Allowable Subject Matter

3. Claim 36 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

4. The following is a statement of reasons for the indication of allowable subject matter: of the prior art references considered none has disclosed a method for image correction including recording an objective via a pinhole in a holographic medium holographically, replacing the pinhole by an article, illuminate the article through the hologram and at the same time recording the article with the reference light beam in the hologram as a superposed or contour inference pattern or hologram image.

Response to Arguments

5. Applicant's arguments filed on May 27, 2003 have been fully considered but they are not persuasive.

6. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., microscope with eyepieces in

Art Unit: 2872

cooperation with the hologram corrector recording device) are not recited in the rejected claim(s).

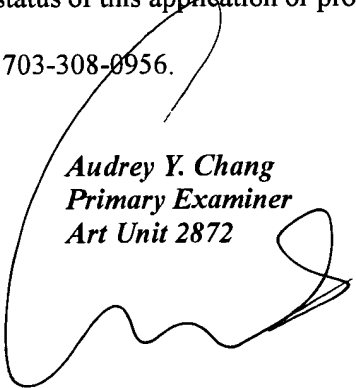
Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 703-305-6208. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 703-305-0024. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

Audrey Y. Chang
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.
July 31, 2003